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10/578,857

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H&U126

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02/04/2010

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EXAMINER

LEE, JAEYUN

ART UNIT

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1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/578,857	<b>Applicant(s)</b> SAKROWSKI, KLAUS DIETER	
	<b>Examiner</b> JAEYUN LEE	<b>Art Unit</b> 1791	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/23/2006 and 8/16/2006</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 12-13 and 15-21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over SEEMANN III (US 4,483,267) in view of Lane (US 4,756,265), SWINK (Continuous Filament Basalt; Basalt Specialty Production, Inc.) and YAN et al. (CN 1421351 A; as cited in IDS).

**With respect to claim 12**, SEEMANN discloses a method of protecting submerged structures from damage due to adhesion and multiplication by harmful organism living in the water in seawater or in industrial water system (... hull of a wooden vessel...to protects the wood interior against rot and attack by marine organisms...; abstract) comprising the step of applying biocide-free antifouling agent comprising glass fibers in the form of a textile fabric (...wooden planking 13 of the boat

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hull 10 is coated with an elastomeric adhesive...and is covered with a fabric-like multiple fiberglass planking; column 4, lines 45-48), whereby the fabric is designed as woven fabric (...plies 21 and 22 being comprised of warp yarns and filler (weft) yarns...) (figure 2; column 4, lines 66-68 to column 5, lines 1-37).

Although, the reference discloses the method comprising glassfibers in the form of a textile fabric wherein the fabric is designed as woven fabric, it is silent as to the method comprising the step of applying biocide-free antifouling agent comprising mineral fibers and E glass fibers with a SiO<sub>2</sub> rate of more than 50% by weight, in the form of a textile fabric, whereby the surface of the antifouling agent is formed predominantly by basalt fibers.

The examiner notes here that the hull of boat being formed of E glass fiber is a well known material used in boat art as evidenced by LANE (...an ocean going speed boat 20 includes hull 22 wherein in the hull is formed of the new S-type glass fiber and resin for strength although the older E-type glass fiber and resin system might be used... (column 5, lines 13-16 and lines 35-38)).

The examiner also notes here that the chemical composition of SiO<sub>2</sub> rate of more than 50% by weight for E-glass fiber and Basalt fiber is a conventional chemical composition as evidenced by SWINK (...the chemical composition of SiO<sub>2</sub> rate by weight in E-Glass and basalt fiber are 52-56% and 48%-59%, respectively).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the glass fibers in the form of woven fabric used as antifouling agent to the hull of wooden vessel with E- glass fibers with a SiO<sub>2</sub> rate of

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more than 50% by weight as a conventional glass fibers having conventional chemical composition used in the boat art.

Further, it is known in method of making hull of fishing boat and yacht with basalt fiber reinforced material art (title; YAN et al.) that the material used includes twist-less basalt rove or fabric, unsaturated polyester resin or epoxy resin, promoter and other supplementary material. The making process includes spreading the basalt material, spraying resin, curing, demolding and other steps. The basalt fiber has acid and alkali resistance, heat stability, tensile strength and other mechanical performance superior to those of common glass fiber. Making hull of fishing boat and yacht with basalt fiber reinforced material can result in improved performance and lowered cost (basic-abstract: novelty).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to add the basalt fiber with conventional chemical composition of SiO<sub>2</sub> rate of more than 50% as taught by YAN et al. as modified by SWINK predominantly to the E glass fiber in the form woven fabric of SEEMANN as modified by LANE and SWINK to improve performance of the acid and alkali resistance, heat stability, tensile strength in making hull of wooden boat of SEEMANN as modified by LANE and SWINK as taught by YAN et al.

**With respect to claim 13**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method wherein the fabric is a fishing net which is placed on the substrate to be protected or on underwater surface to be protected (SEEMANN; column 3, lines 64-65; column 4, lines 45-58; figure 2).

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**With respect to claim 15**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method wherein the textile fabric is applied by means of adhesives or other chemically adhesive products to the substrate or to the underwater surface to be protected (SEEMANN; column 3, lines 64-65; column 4, lines 45-58; figure 2; column 6, lines 15-18).

**With respect to claim 16**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method wherein the basalt fibers or basalt filaments are used as mineral fibers or filaments.

**With respect to claim 17**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method wherein the textile fabric has edge protection along its edges\*.

\* The examiner notes here that although it dose not explicitly disclose as claimed in claim 17, one of ordinary skilled in the art would have readily appreciated to recognize that the edge protection to the fabric is necessary to prevent from fraying.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to employ the edges of fabric of SEEMANN as modified by LANE, SWINK, and YAN et al. being protected to prevent the fabric from fraying.

**With respect to claim 18**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method whereby the woven fabric comprises warp and weft threads (warp and filler (weft) yarns; SEEMANN; figure 2; column 5, lines 1-13) , in each case basalt fibers (of YAN et al.).

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**With respect to claims 19-21**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method as discussed with respect to claim 12 above. Also, SEEMANN discloses the method whereby the roving (23 and 24) and yarns (21 and 22) are used for the woven fabric 20 (column 5, lines 1-68).

It is silent as to the roving and yarns with a fineness of 50 to 3000 tex and/or 50 to 500 tex are used for the woven fabric and the woven fabric produced from the yarns have a surface weight of 70 to 1500g/m<sup>2</sup> and/or 90 to 200 g/m<sup>2</sup>.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the fineness of roving and yarns as well as the surface weight of yarns as claimed in claim 19-21 to provide desired optimum fineness and surface weight of yarns used as antifouling agent and/or reinforcement to the hull of boat. Clearly, the fineness and the surface weight of the yarns and/or roving used in the hull of boat are result effective variables which would have been determined through routine experiment.

**With respect to claim 25**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method whereby the textile fabric material comprises yarns (21 and 22) or multiyarns.

4. Claims 14, 22-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over SEEMANN III (US 4,483,267) in view of Lane (US 4,756,265), SWINK (Continuous Filament Basalt; Basalt Specialty Production, Inc.) and YAN et al. (CN 1421351 A; as cited in IDS) as applied to claims above, and further in view of DUNN (US 2005/0070182).

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**With respect to claim 14**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method as discussed with respect to claim 12 above in paragraph 3. However, it is silent as to the method wherein the fishing net is a knotless, warp-knitted fishing net suitable for aquaculture or an antifouling coating.

It is known in crimp-free infusible reinforcement fabric art (title; DUNN) that composite fabrics made from fibrous materials formed into both woven, knitted and non-woven material are well-known in the art. Yarns of glass, carbon and graphite are typically formed into fabrics, and a plurality of layers of fabric are stacked and cut into cry fabric preforms. The preforms are then stitched and/or impregnated with a resin binder to a rigid composite fabric. Typically, a glass reinforced fibrous mat is preformed and then placed in a mold for molding into a fiber-reinforced article. Glass fiber-reinforcement mats are used in situation where a desired strength is necessary, such as in boat hulls (p. 1, paragraph 0002-0003). The fabric of the present invention may be constructed of woven, knitted, or non-woven fibers, yarns, threads, filaments and the like. The structural fibrous material may be any well-known materials which form fibers, filaments, threads, yarns, woven fabrics, knitted fabrics, etc. Exemplary structure fibrous materials include glass in the form of glass fibers. There are various methods of maintaining the primary fibers in position in a unidirectional fabric including weaving, stitching, and bonding, as is known in the art. In a preferred embodiment, the fibers are crimp-free warp knitted fabrics (p.2, paragraph 0032-3033).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to employ the fishing net 20 of SEEMANN as modified by



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LANE, SWINK, and YAN et al. being a crimp-free, warp-knitted fishing net as taught by DUNN suitable for aquaculture (fabric used in boat hull) as an alternative fabric type used as reinforcement for boat hulls as taught by DUNN.

**With respect to claims 22-24**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method as discussed with respect to claim 12 above in paragraph 3. However, it is silent as to the method whereby the woven fabric comprises several layers and is fastened mechanically in terms of waving technology with quilting seams, whereby the quilting seams are executed using a sewing cotton. Also, it is silent as to the method whereby the layers of the textile fabric are connected to one another by means of adhesion technology.

It is known in crimp-free infusible reinforcement fabric art (title; DUNN) that composite fabrics made from fibrous materials formed into both woven, knitted and non-woven material are well-known in the art. Yarns of glass, carbon and graphite are typically formed into fabrics, and a plurality of layers of fabric are stacked and cut into cry fabric preforms. The preforms are then stitched and/or impregnated with a resin binder to a rigid composite fabric. Typically, a glass reinforced fibrous mat is preformed and then placed in a mold for molding into a fiber-reinforced article. Glass fiber-reinforcement mats are used in situation where a desired strength is necessary, such as in boat hulls (p. 1, paragraph 0002-0003).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to employ the multi-ply yarns 21 and 22 of SEEMANN as modified by LANE, SWINK, and YAN et al. to be fastened via stitching (quilting seam)

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and/or using resin binder (means of adhesion technology) to form a composite fabric as taught by DUNN as a well known fastening method of woven fabric layers art.

Although DUNN reference is silent as to stitching the layers of woven fabric using a sewing cotton and/or the fabric being connected to one another by means of welding adhesive tape and/or by means of adhesive powder, it would have been obvious to one of ordinary skilled in the art to use the sewing cotton as a well known material used to stitch the seams of fabric. Also, it would have been obvious to one of ordinary skilled in the art to use the adhesive tape as an well known alternative adhesive means (instead of resin binder) to attach fabric layers together.

**With respect to claim 26**, SEEMANN as modified by LANE, SWINK, and YAN et al. discloses the method as discussed with respect to claim 12 above in paragraph 3. However, it is silent as to the method whereby the textile fabric, prior to use as an antifouling agent, is subjected to a texturing process.

DUNN discloses as described above. Also, it discloses using sewing needles to form a plurality of channels in a reinforcement blanket to aid in distributing resin throughout the blanket is known.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to employ the fabric of SEEMANN as modified by LANE, SWINK, and YAN et al. to be subjected to a texturing process (using sewing needles) as taught by DUNN to form a plurality of channels in a reinforcement blanket to aid in distributing resin throughout the blanket as taught by DUNN.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAEYUN LEE whose telephone number is (571)270-5114. The examiner can normally be reached on Monday thru Tuesday 8am to 4pm est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Aftergut/  
Primary Examiner, Art Unit 1791

/JL/  
1/25/2010